

IRMA Chain of Custody Standard for Responsibly Mined Materials

v1.0 EN

October 2024

English

IRMA Chain of Custody Standard

for Responsibly Mined Materials

v1.0 EN

October 2024

English Version

Acknowledgements

IRMA would like to thank all those who provided comments and recommendations to the various draft versions of this document. We would like to expand our gratitude to all the members and partners of IRMA, including Indigenous rights' organizations, mining-affected community organizations and associations, national and international NGOs, labor organizations and unions, mining companies, downstream purchasers, finance organizations and banks, standard-setting organizations, industry associations, consultants and practitioners, and others. The full list of IRMA members and partners is available [on our website](#).

Disclaimer

IRMA will update this document as needed, replacing the previous version. Printed copies are uncontrolled and for reference only. Please refer to the electronic copy on the IRMA website (<https://responsiblemining.net>) to ensure you are referring to the latest version. Although every effort has been made to verify the accuracy of translations, the English language version should be taken as the definitive version.

Version History

Version number	Publication date	Description of amendment
1.0	October 2024	First publication

About IRMA

The Initiative for Responsible Mining Assurance (IRMA) is the answer to a global demand for more socially and environmentally responsible mineral value chains. IRMA offers true independent assessment against a comprehensive standard for all mined materials that provides 'one-stop coverage' of the full range of issues related to the impacts of industrial mines.

IRMA vision

We envision a world where the mining industry respects the human rights and aspirations of affected communities, provides safe, healthy, and supportive workplaces, minimizes harm to the environment, and leaves positive legacies.

IRMA equal governance model

How voting happens, who has a vote, and what weight a vote carries, is key in multi-stakeholder leadership. IRMA is a multi-stakeholder-led organization, meaning that it must be accountable to all.

IRMA's governance is equally shared by six 'houses' of stakeholder groups: civil society, communities, and organized labor, alongside the mining, purchasing, and finance sectors. What this means in practice is that IRMA has a decision-making process that strives for consensus, and where consensus cannot be achieved, we then vote. All houses have two representative Board members, all with equal voting powers. However, a motion to approve a decision cannot succeed if any house is fundamentally opposed. In those cases, discussions must continue so that a resolution may be found.

For more information on decision-making, see [IRMA website](#).

Inquiries or feedback

IRMA welcomes feedback on this document. Please the IRMA Secretariat by email at: info@responsiblemining.net

Table of content

PREAMBLE	4
1. INTRODUCTION	5
1.1 OVERVIEW.....	5
1.2 PURPOSE.....	5
1.3 EXTERNAL REFERENCES AND INTER-OPERABILITY.....	6
1.4 SCOPE.....	6
1.5 ELIGIBILITY.....	6
1.6 STRUCTURE OF THE STANDARD.....	7
1.7 CHAIN OF CUSTODY DESIGN.....	7
1.8 CLAIMS.....	8
1.9 LANGUAGE.....	8
2. CHAIN OF CUSTODY MODELS	9
3. GENERAL TERMS AND DEFINITIONS	12
2.1 TERMS RELATED TO CHAIN OF CUSTODY AND SUPPLY CHAIN.....	12
2.2 TERMS RELATED TO ROLES AND RESPONSIBILITIES.....	13
2.3 TERMS RELATED TO CONFORMITY ASSESSMENT AND TRACEABILITY.....	13
4. CONFORMANCE REQUIREMENTS	15
A. MANAGEMENT SYSTEMS.....	15
B. DOCUMENTATION AND ASSURANCE.....	18
C. MATERIAL ACCOUNTING.....	20
D. SALES AND SHIPPING.....	25
E. RECYCLED MATERIALS.....	28
APPENDIX 1. FREE ALLOCATION AND CREDIT METHOD FORMULA.....	30

Preamble

Modern societies rely on mined minerals to function. Nearly everything manufactured or constructed—from buildings to roads to computers to automobiles—contains material mined from the Earth. Mining provides important employment and financial opportunities for host communities and host countries. But it is a complex and intensive process that can impact the physical environment, such as through the loss of habitat or contamination of water, and may affect local communities' social and economic lives, such as through displacement of livelihoods or cultural impacts.

Many negative environmental and social impacts can be prevented, mitigated, or remediated if mines operate in a manner that is aligned with best practices. The *IRMA Standard for Responsible Mining* specifies a set of objectives and leading performance requirements for environmentally and socially responsible practice at the mine site. The IRMA Standard for Responsible Mining serves as the basis of a voluntary system offering independent third-party audits of environmental and social performance measures at industrial scale mine sites around the world.

In response to demands from end users for independently verified socially and environmentally responsible mined materials, IRMA has developed a standard and system to track and provide assurance about the origin and impacts of mined materials being purchased and sold in the marketplace. The *IRMA Chain of Custody Standard for Responsibly Mined Materials* (IRMA CoC Standard) sets out specific requirements for tracking material from verified IRMA-audited mines and mineral processors to market, enabling Entities operating within the supply chain and end users to make credible claims about IRMA-audited material.

These systems are powerful tools that, when applied, provide a measurable demonstration of due diligence in responsible sourcing, as described by the Organisation for Economic Co-operation and Development (OECD). OECD describes this as “an on-going, proactive, and reactive process through which companies can ensure that they respect human rights and do not contribute to conflict.”¹

This standard is designed to be compatible with other standards programs that ensure responsible sourcing of mined materials downstream of the mine (e.g., ResponsibleSteel, Responsible Jewellery Council). In addition, this Standard has been developed to work in concert with existing and emerging traceability services and technologies (e.g., block chain, mineral ID scanning, testing, etc.).

IRMA released an initial draft CoC standard in 2020 for public review and comment. A second revised draft version informed by comments on the 2020 version, including the addition of controlled blending and book-and-claim accounting models to align with practical realities of complex supply chains was released for a 90-day public-comment period between October 2023 and January 2024. This final version of the IRMA CoC Standard V1.0 was approved by IRMA's equally governed multi-stakeholder Board in September 2024.

¹ OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas, Third Edition, OECD © 2016.

1. Introduction

1.1 Overview

The IRMA Chain of Custody (CoC) Standard was developed to provide the base-level requirements for tracking of verified IRMA-audited materials, from the mine through the supply chain to the end consumer. The term “IRMA-audited materials” refers to minerals and metals produced and sold by mine sites that have completed an independent third-party audit against the IRMA Standard for Responsible Mining and have obtained an IRMA Achievement Level.

The IRMA CoC Standard is for use by Entities **processing, buying, or using** IRMA-audited materials along the supply chain. To make official claims that are approved and assured by IRMA, such Entities shall be independently assessed by an IRMA-accredited Certification Body, in accordance with the IRMA CoC Assurance Manual.

The IRMA CoC Standard is supplemented by the IRMA CoC Claims Procedure and Communications Policy which specifies normative requirements and/or guidance for specific mineral supply chains. Although recycled materials are not presently available for independent IRMA audits, they are an important part of the metals supply chain; Section 4.E. of this document also contains normative guidance for recycled materials accounting when mixed with IRMA-audited materials.

1.2 Purpose

The IRMA CoC Standard aims to:

1. Increase transparency in mineral value chains.
2. Provide Entities in the supply chain with a common set of requirements for sourcing, tracking, accounting, handling and selling IRMA-audited materials.
3. Establish requirements that can be independently audited to provide objective evidence for the flow of IRMA-audited materials through the supply chain.
4. Allow for IRMA CoC-compliant Entities to make claims regarding the use and sale of IRMA-audited materials.
5. Allow intermediaries and end-buyers to have better visibility on the social and environmental footprint of the mineral raw materials present in the products they purchase.

1.3 External references and inter-operability

International Standard *ISO 22095 Chain of Custody – General terminology and models*² together with *AMIRA P754: Metal Accounting, Code of Practice and Guidelines*³ are commonly identified as current industry best practice. The IRMA CoC Standard is consistent with those sources, subject to additional IRMA requirements as identified herein. The IRMA CoC Standard is also designed to be consistent with other initiatives such as the London Platinum and Palladium (LPPM) Responsible Platinum/Palladium Guidance, ResponsibleSteel, and Responsible Jewellery Council. However, the IRMA CoC Standard has specific requirements and models that may be different in some cases.

1.4 Scope

The IRMA CoC Standard Conformance Requirements are applicable to any Entity operating at any step in the supply chain, globally, without jurisdictional limit.

In this document, the term "chain of custody models" is used to describe the approach taken to control inputs and outputs and associated information in a particular chain of custody system. For a particular commodity it is possible that more than one chain of custody model may be used to describe different processes or procedures in the supply chain. As each chain of custody model represents a different level of physical presence of the specified characteristic in the output, this document provides general guidance on the application of the defined chain of custody models, including initial guidance on the circumstances under which each chain of custody model might be appropriate.

1.5 Eligibility

An assessment against the IRMA CoC Standard is available to Entities producing, processing, buying, or using IRMA-audited materials along mineral value chains.

	Exploration project	Mine Site	Smelter	Trader	Refiner	Fabricator	Manufacturer	End-Brand
Eligible for the IRMA CoC Standard		✓	✓	✓	✓	✓	✓	✓

Products from all these different sources can contain materials that are not within the scope of IRMA-assessed sites. Chain of Custody-related claims made by entities must not imply assessment of such materials (see IRMA CoC Claims Procedure and Communications Policy for more details).

² First Edition 2020-10 Reference number ISO 22095:2020E.

³ AMIRA International, Release 3, February 2007.

1.6 Structure of the Standard

The IRMA CoC Standard first provides general terminology, information on chain of custody design, and describes the chain of custody models applicable to the IRMA CoC Standard. It then provides the IRMA CoC Standard Conformance Requirements for entities seeking compliance verification.

To complement the IRMA CoC Standard, two important documents are also publicly available separately: the IRMA CoC Assurance Manual, and the IRMA CoC Claims Procedure and Communications Policy. The IRMA CoC Claims Procedure and Communications Policy provides additional information on how the chain of custody models and claims should be applied with respect to the IRMA Standard. It also contains normative industry guidance for specific mineral commodities and for recycled materials.

1.7 Chain of Custody Design

Although frequently considered as interchangeable, the concepts of traceability and chain of custody are not identical. A *chain of custody* is a chain of responsibility for the custodianship of materials or products as they move through a supply chain. In the context of IRMA, its purpose is to ensure that the IRMA-achievement levels and quantities of IRMA-audited materials that are claimed for a particular material or product (or for the market as a whole) are indeed the ones that are actually delivered or credited in the output.

A chain of custody system encompasses the set of measures supporting responsibility for the custody of minerals, metals, materials and products as ownership or control is transferred from one Entity to another within the relevant supply chain. A chain of custody for minerals usually involves more than one Entity and may involve numerous Entities once warehousing, trading and fabrication are considered. Chain of custody will include documentation such as quantity of IRMA-audited material produced, IRMA-achievement levels, mine origin certificate, transport documentation, export and import records, and factory receipts.

Traceability means the ability to follow the trail of metals or minerals along the chain of supply by monitoring and tracking chain of custody. For example, by using the chain of custody system, auditors can trace IRMA-audited material back to the mine of origin.

1.8 Claims

Assured claims based on the IRMA CoC Standard are permitted if, and only if, the Entity making such claims has completed an independent third-party audit, conducted by an IRMA-accredited Certification Body, resulting in full conformance and compliance verification. Assured claims:

- Can be made only within the IRMA CoC compliance period of validity.
- Must be controlled by IRMA prior to being made.
- Must follow the applicable version of the IRMA CoC Claims Procedure and Communications Policy.

1.9 Language

Unlike the IRMA Standard for Responsible Mining, the IRMA CoC Standard is a “compliance” standard, in the sense that it only contains verifiable criteria to be fulfilled and from which *no deviation* is permitted if conformance with the document (i.e. compliance) is to be assured. This is not a continuous-improvement-oriented or performance-based standard.

Therefore, the IRMA CoC Standard uses the auxiliary verb “shall” to indicate a requirement that must be met, in line with ISO, IEC, and numerous other international standardization systems.

Technical terms are defined in the section ‘General Terms and Definitions’. The definitions are considered to be normative for the purpose of interpreting the IRMA CoC Standard.

2. Chain of Custody Models

The IRMA CoC Standard allows for five different chain of custody models for chain of custody systems. Each model has specific requirements that allow different claims to be made about materials or products that are delivered using that chain of custody model.

The five chain of custody models allowed by the IRMA CoC Standard are:

1. **Identity Preserved Model** - *chain of custody model* in which the materials or products originate from a single source and their *IRMA Standard achievement levels* are maintained throughout the supply chain;
2. **Segregated Model** - *chain of custody model* in which *IRMA Standard achievement levels* of a material or product are maintained from the initial input to the final output;
3. **Controlled Blending Model** - *chain of custody model* in which materials or products with a set of *IRMA Standard achievement levels* are mixed according to certain criteria with materials or products without that set of characteristics resulting in a known proportion of the *IRMA Standard achievement levels* in the final output;
4. **Mass Balance Model** - *chain of custody model* in which materials or products with a set of *IRMA Standard achievement levels* are mixed according to defined criteria with materials or products without that set of characteristics;
5. **Book and Claim Credit Model** - *chain of custody model* in which the physical flow of material with a set of *IRMA Standard achievement levels* is not connected, but an administrative record of flow is maintained to ensure the quantity and achievement levels booked are not exceeded by the claims. Entities using the book and claim credit model cannot guarantee that a particular physical output, even when accompanied by the appropriate credit or certificate, actually contains items from a verified source with the specific *IRMA achievement level* under which they were produced.

One of the basic purposes of the IRMA CoC Standard is to ensure that whichever chain of custody model or combination of chain of custody models is adopted, its integrity is safeguarded. The choice as to which chain of custody model should be used depends on various factors with regards to the quality and benefits the Entities in the supply chain intend to achieve, in addition to the nature of the processes and practices used in each step of the supply chain specific to each mineral commodity.

Table 1 summarizes the key properties of the five chain of custody models. Each of the chain of custody models is linked to different options for making claims regarding the specified IRMA achievement levels.

While expectations can vary greatly, there are two main types of expectations that are typically identified. The first main type of expectation is *item-based* where the material or product received bears all the characteristics identified by associated information. Identity preserved and segregated models satisfy item-based expectations of organizations active in the chain of custody, consumers, or other end users.

Table 1. Summary of Properties of the Chain of Custody Models in the IRMA CoC Standard (modified from ISO 22095:2020)					
PROPERTIES OF CHAIN OF CUSTODY MODELS	MODELS WITHOUT MIXING		MODELS WITH MIXING		BOOK AND CLAIM CREDIT
	Identity Preserved	Segregated	Controlled Blending	Mass Balance	
Connection between administrative document flow and the physical flow of materials and products	Yes	Yes	Yes	Yes	No
Item-based expectations satisfied	Yes	Yes	Yes, for the % with Specified IRMA achievement level	No	No
Market-based expectations satisfied	Yes	Yes	Yes	Yes	Yes
Mixing material with specified IRMA achievement level and material with non-specified IRMA achievement level is possible	No	No	Yes	Yes	Yes
Assurance that volumes with specified IRMA achievement level sold match (or do not exceed) volumes of material with specified IRMA achievement level bought	Yes	Yes	Yes	Yes	Yes
Specified IRMA achievement level preservation linked to volume reconciliation	No	No	Yes	Yes	Yes
Physical separation of material or products to ensure that the specified IRMA achievement levels are physically present in the output	Yes	Yes	Yes, for the part with Specified IRMA achievement level	No	No
Identify source of a material or product (or material component or product component)	Yes	No	No	No	No

The other main type of expectation is *market-based* where taken as a whole, the market for the material or product received delivers the characteristics (i.e. specified IRMA achievement levels) identified by associated information. Market-based expectations imply that the organizations active in the chain of custody, consumers or other end users are satisfied that on average or in the proportions specified, the purchase of such materials or products will deliver the claimed characteristics. The book and claim credit model is also market-based. While there is no physical custody of material or products involved, the book and claim credit model aims to ensure that for each purchase for which a claim is made, materials or products with the same specified IRMA achievement levels have been produced.

Additional information including examples and calculation methods for each of the CoC models is provided in the IRMA CoC Claims Procedure and Communications Policy.

3. General Terms and Definitions

For the purposes of the IRMA Chain of Custody (CoC) Standard, the following terms and definitions⁴ apply. For relatability, the terms and definitions are provided in the following three categories:

- Terms related to chain of custody and supply chain
- Terms related to roles and responsibilities
- Terms related to conformity assessment and traceability

The term *Entity* in this document means any company, corporation, partnership, individual, or other type of business or organization directly engaged in the supply chain.

3.1 Terms related to chain of custody and supply chain

chain of custody - process by which *inputs* and *outputs* and associated information are transferred, monitored and controlled as they move through each step in the relevant *supply chain*.

chain of custody system - set of measures designed to implement a *chain of custody*, including documentation of these measures.

chain of custody model - approach taken to control *inputs* and *outputs* and associated information in a particular *chain of custody system*.

characteristic - distinguishing feature.

conversion factor - a conversion factor is a numerical ratio used to express a quantity in different units, allowing for the conversion of measurements from one system to another. In the context of mineral processing, this refers to the ratio between the amount of pre-processed material and of post-processed material (for any given processing step/stage)

input - material or product that enters an *Entity* or part of an *Entity*.

output - material or product that leaves an *Entity* or part of an *Entity*.

process - set of interrelated or interacting activities that use *inputs* to deliver an intended *output*.

product characteristic - distinguishing feature of a material or product (e.g., IRMA transparency, 50, 75, 100).

production characteristic - distinguishing feature of one or more production processes in the *supply chain*.

site - location with geographical boundaries at which defined activities under the control of an *Entity* are carried out.

source - specific originator at the location of a material or product with a *specified characteristic*.

⁴ Terms and definitions are based on ISO 22095, *Chain of Custody – General terminology and models* (ISO 22095:2020E), First Edition, 2020.

specified characteristic - set of *product characteristics* and/or *production characteristics* that the *chain of custody* is designed to maintain (i.e., IRMA-audited material or a specific IRMA achievement level)

supply chain - series of processes or activities involved in the production and distribution of a material or product through which it passes from the *source*.

3.2 Terms related to roles and responsibilities

corporate management - person or group of people who direct and control an Entity at the highest level

3.3 Terms related to conformity assessment and traceability

audit - process for obtaining relevant information about an entity seeking the *conformity assessment* and *compliance verification*, in order to evaluate it objectively and determine the extent to which *specified requirements* are fulfilled.

claim - declared information regarding the *specified characteristics* of a material or product.

compliance verification - third-party attestation related to an object of *conformity assessment*.

conformity - fulfillment of a *specified requirement*.

conformity assessment - demonstration that *specified requirements* are fulfilled.

first-party conformity assessment activity - *conformity assessment* activity that is performed by the *Entity* that provides or that is the object of conformity assessment. For the purposes of the IRMA CoC Standard this is the equivalent of an internal audit.

inspection - examination of an object of *conformity assessment* and determination of its *conformity* with detailed requirements or, based on professional judgement, with general requirements.

third-party conformity assessment activity - *conformity assessment* activity that is performed by an Entity or person that is independent of the provider of the object and has no user interest in the object of conformity assessment. For the purposes of the IRMA CoC Standard this is the equivalent of a third-party audit conducted by a qualified audit firm.

traceability - ability to trace the history, application, location or source(s) of a material or product throughout the *supply chain*.

traceability system - manual or electronic system that provides the ability to access any or all information relating to the material or product under consideration throughout their life cycle, by means of accessing documented information.

verification - confirmation of truthfulness, through the provision of objective evidence that *specified requirements* have been fulfilled.



4. Conformance Requirements

A. MANAGEMENT SYSTEMS

A.1. General Requirements

The general requirements when implementing chain of custody models apply to all Entities active in a chain of custody and to all chain of custody models that are applied.

A.1.1. The Entity shall implement and maintain a chain of custody system adequate to its type and complexity to ensure continuous conformity to all applicable IRMA CoC Conformance Requirements.

A.1.2. The Entity shall ensure that all other entities active in the assessed chain of custody fulfill the applicable IRMA CoC Standard Conformance Requirements.

A.1.3. The Entity shall establish and implement one or more of the chain of custody models described in Appendix B for all materials or products it seeks to assure and shall be transparent about the model chosen.

A.1.4. The Entity shall only use the same chain of custody model as its supplier, or an inferior model,⁵ with regard to the presence of the IRMA-audited material in the output.

A.1.5. The Entity shall apply the rules for ethical claims and supporting information when using chain of custody models to prevent misleading claims on the material or product. All claims made shall conform with the applicable version of the IRMA CoC Claims Procedure and Communications Policy.

A.1.6. The Entity shall ensure that its chain of custody system:

- a) Specifies the boundaries and applicability of the system to establish its scope. The scope shall be documented.
- b) Specifies the personnel responsible and their roles for implementing the various requirements of a specific chain of custody model.

A.1.7. The Entity shall ensure that its chain of custody system specifies the procedures needed for the implementation of a specific chain of custody model. These procedures shall:

- a) Consider the requirements of the specific chain of custody model. Specify the documented information, including templates, forms, records, and conformity documents, that needs to be kept by the entity.
- b) Specify the use of a Metal Accounting system consistent with AMIRA P754 Code of Practice and Guidelines: Release 3 or a recognized equivalent.

⁵ According to the order of models provided in Section '2. Chain of Custody Models'.

A.2. Competence

A.2.1. The Entity shall appoint a representative in the organization as their CoC administrator (or equivalent), responsible for ensuring that all the IRMA CoC Standard Conformance Requirements, as applicable, are followed, and understood by all relevant staff.

A.2.2. All relevant staff shall be able to demonstrate awareness of the Entity's procedures, and adequate competence⁶ in implementing the Entity's chain of custody management system.

A.3. Internal Assessment Program

A.3.1. The Entity shall regularly monitor, measure, analyze, and evaluate the performance of its chain of custody system by:

- a) Conducting audits to evaluate the performance of the chain of custody system procedures and the conformance with all applicable requirements. The frequency of these audits shall be at least annual, and any additional audits required shall be based on an assessment of risk. The type of audit shall be commensurate to the risks identified and defined by the Entity. These audits shall cover all processes and the selected sites handling the product. If annual assessment of all sites is not possible, the Entity active in the chain of custody may prioritize sites based on a documented risk assessment.
- b) Reviewing by top management the Entity's chain of custody system, at planned intervals, at least annually. The management review shall be documented.

A.3.2. The Entity shall establish and implement documented procedures to handle non-conformities (including those related to delivered materials and products) that are related to the Entity's chain of custody. The Entity shall ensure that relevant and effective corrective actions are taken within a defined timeframe. Non-conformities and the resulting actions taken shall be documented.

A.3.3. If the Entity becomes aware of any non-conformities, it shall immediately and proactively inform the chain of custody organizer and its relevant partners throughout the supply chain.

⁶ Based on appropriate education, training, and/or experience. Where applicable, they take actions to acquire the necessary competence, and can demonstrate effectiveness of the actions taken.

A.4. Complaints Procedure

A.4.1. The Entity shall ensure that complaints received regarding its conformity to the IRMA CoC Conformance Requirements applicable to the scope of its chain of custody system are considered. The complaints procedure shall at least ensure that the Entity:

- a) acknowledges the receipt of the complaint to the complainant within a reasonable timeframe defined by the Entity.
- b) investigates the complaint and specifies its proposed actions in response to the complaint within a reasonable timeframe defined by the Entity.
- c) notifies the complainant if more time is needed to complete the investigation.
- d) takes relevant and effective actions with respect to complaints and any deficiencies found in processes that affect conformity to the requirements.
- e) notifies the complainant when the complaint is adequately addressed and closed.

1.4.2. Documented information shall be maintained on complaints and consequent action, including resolution. The procedure for handling complaints shall be made publicly available.

1.4.3. The Entity shall publicly report, at least annually, the number and types of CoC-related grievances filed during the previous accounting period, and the percentage of grievances that were addressed and resolved.

A.5. Outsourcing⁷

A.5.1. The Entity shall have responsibility for all outsourcing and contractors related to its chain of custody. The Entity's chain of custody shall include all outsourced operations. This includes those involved in the processing, treating, manufacturing, or otherwise manipulating the materials or products, whether onsite or offsite.

A.5.2. The Entity shall establish written outsourcing agreements with their contractor(s). The agreement shall give the Entity or the Entity's representative access to the relevant contractor's operations to ensure that requirements connected to the chain of custody and all the IRMA CoC Standard Conformance Requirements are met.

A.6. Communication

A.6.1. The Entity shall determine the internal and external communication relevant to the chain of custody system applied. The Entity shall ensure that the relevant requirements for implementation of the chain of custody system applied

⁷ Entities may relinquish physical custody of IRMA-audited material it owns or controls for the purpose of another entity processing, treating, manufacturing, or otherwise manipulating the material (i.e. outsourcing or using contractors). When IRMA-audited material is physically held by such external entity, there is a higher risk that a link in the physical chain of custody may be broken.

are communicated effectively across all relevant stakeholders, including personnel and suppliers.⁸

B. DOCUMENTATION AND ASSURANCE

B.1. Documentation

B.1.1. The Entity shall maintain complete and up-to-date documented information relevant to demonstrating the Entity's conformity with all applicable IRMA CoC Standard Conformance requirements.

B.1.2. Retention time for all documented information, including purchase and sales documents, training records, and production records, shall respect the retention time of the relevant chain of custody, and shall be specified considering among other factors, long-term effects and the lifetime of the material or product. The Entity shall be able to confirm the status of materials or products held in stock, whether estimated or actual quantities, at all times.

B.1.3. Documented information⁹ relating to all transactions shall be made and maintained available (documents are generated when a transaction is registered, or when an overview of all transactions and events is registered) and shall allow verification of the chain of custody model. This documented information shall identify the material or products at stake and describe their physical flow where relevant. The information may consist of written documents and procedures and/or an automated control of the chain of custody system.

B.1.4. The Entity shall establish and maintain documented information to demonstrate conformance with all applicable IRMA CoC Standard Conformance Requirements. Information from external entities or other stakeholders deemed necessary for planning, operation, and management of the chain of custody shall be identified. For the control of documented information, the Entity shall, define, at a minimum:

- a) distribution, access, retrieval, and use;
- b) adequate protection (e.g., from loss of confidentiality, improper or malicious use, or loss of integrity);
- c) storage and preservation, including preservation of legibility;
- d) change(s) in version;
- e) retention time and disposal, in accordance with requirement D.1.4 (and considering e.g., confidentiality);
- f) who in the Entity authorized any changes in version.

⁸ "Suppliers" is intended to apply to other Entities providing only the commodity to the Entity active in the chain of custody. It is not intended to apply to all suppliers. As an example, if the Entity is tolling concentrate from another IRMA mine, it would be important to ensure that the other Entity understands that the concentrate was only produced by the intended IRMA mine, and not some other source. Similarly, if a controlled blending approach is being used, key operations personnel need to be informed of the need to maintain the amounts of material being blended at the intended proportions.

⁹ Examples of documented information include:

- supplier assessment of the defined specified characteristics of the inputs and outputs;
- purchase documents including, for example, purchase orders, contracts, invoices and records of incoming goods receipts inspections, delivery notes and received quantities;
- processing information including the conversion factor and specifications, stock records and quantities of materials and products, stored and finished;
- production records;
- sales orders, sales invoices issued by the organization active in the chain of custody, dispatch information including dates, customers to which the batch or lot was dispatched, quantities of delivery records;
- stock records including inventory balancing;
- transporter or shipper details.

B.1.5. The Entity shall define the scope of relevant entities and organizations in the chain of custody that are allowed to have access¹⁰ to the documented information and/or allowed for site visits and shall allow them to do so accordingly.

B.2 Assurance

B.2.1. Through the independent third-party initial or surveillance audits conducted by an IRMA-accredited Certification Body against the IRMA CoC Standard on an annual basis, the Entity shall demonstrate that the materials or products received are delivered to specification. This shall include:

- a) confirmation that the supplied input complies with the specified IRMA achievement level(s);
- b) confirmation that all inputs comply with the minimum requirements for the chain of custody model used (See Section C. Material Accounting);
- c) confirmation that input and output have met all applicable IRMA CoC Standard Conformance Requirements, as appropriate to the chain of custody model and to the types of claims;
- d) identification of the material or product received based on the defined IRMA achievement levels (where relevant);
- e) confirmation of purchase, complaints and transportation documents associated with the input;
- f) ensuring that each transaction is clearly identifiable;
- g) documentation relating to the sale of material or product, including a reference to the corresponding chain of custody model;
- h) a process that ensures that suppliers and outsourced activities are assessed initially, and periodically thereafter, at least annually, to ensure that they meet all of the relevant requirements.

¹⁰ Access can imply a decision regarding the permission to view the documented information only, or the permission and authority to view and change the documented information.

C. MATERIAL ACCOUNTING

C.1. Requirements for Identify Preserved Model

C.1.1. The Entity applying the identity preserved model shall ensure that the material or product with an IRMA achievement level is physically separated and clearly identifiable throughout all stages of the production and transportation and the trading process. **The Entity shall ensure that the material or product is clearly identifiable to a particular single source.** This shall be achieved by demonstrating:

- a) physical separation of inputs and outputs with IRMA achievement levels originating from a single source from any other inputs and outputs during all stages;¹¹
- b) clear identification of the materials or products during the process; and
- c) the output quantities corresponding to the input quantities are in line with an appropriate conversion factor.

C.1.2. The Entity shall define which IRMA achievement level of the material or product originating **from a single source** is maintained (including at the source) and which materials or products are kept physically separated from all others.

C.2. Requirements for Segregated Model

C.2.1. The Entity applying the segregated model shall ensure that the IRMA-audited material is physically separated and clearly identifiable throughout all stages of the production and the trading process. This shall be achieved by demonstrating:

- a) physical separation of inputs and outputs with IRMA achievement levels from any other inputs and outputs during all stages;¹²
- b) clear identification of the material or products during the process;
- c) the output quantities corresponding to the input quantities in line with an appropriate conversion factor.

C.2.2. The Entity shall define how the same IRMA achievement levels are maintained and kept physically separated from materials of different IRMA achievement levels, if applicable.

¹¹ For example: production, transport, and storage.

¹² Ibid

C.3. Requirements for Controlled Blending Model

C.3.1. The Entity applying the controlled blending model shall ensure that the quantity of physical inputs and outputs (volume or weight) at the site are monitored and documented. The Entity shall ensure that the output supplied to customers from a site does not exceed the percentage of input with IRMA achievement levels received at the site. The percentage of controlled blended output delivered is always subject to the available percentage as determined by input, current stock, or combination thereof. This shall be achieved by demonstrating:

- a) physical separation of blended material or product in terms of production, transport and storage;
- b) clear identification of the blended material or product during the process;
- c) the output quantities corresponding to the input quantities in line with an appropriate conversion factor.

C.3.2. The Entity shall deliver the required percentage of each output with IRMA achievement levels in accordance with the requirements of the chain of custody system.

C.3.3. IRMA-audited material/s shall be processed over a period of no more than one year. For the chosen inventory balancing period, the incoming percentage of controlled blending input shall be known beforehand in order to determine the percentage of conforming output before delivery. The ratio determines the delivered percentage of controlled blending output per contained volume (e.g., batch, shipment, storage facility).

C.4. Requirements for Mass Balance Model

C.4.1. Rolling Average Percentage Method.

The Entity applying the mass balance model **with the rolling-average percentage method** shall calculate the average percentage of the inputs and outputs of a defined category of IRMA achievement level for each material or product. For each material or product, the Entity shall define claim periods, which shall correspond to the claimed relation of the input to the output. These input and output claim periods shall not exceed one year.

C.4.2. Free Allocation method.

The Entity applying the mass balance model **with the free allocation method** shall calculate the allocated amounts of the inputs and outputs of a defined category of IRMA achievement level for each material or product as follows:

- a) The conversion factor shall be defined within each material or product at each site, and it shall be applied to define the allocated amounts to enter the allocation account, when using the output as the basis for calculation, or to withdraw the allocated amounts when using the input as the basis for calculation.
- b) The allocation account balance shall be calculated for each period according to the formula given in Appendix 1. For each material or product, the organization shall set up and maintain an allocation account for each type of input used as an output declaration. The organization shall ensure that the allocation account is not overdrawn within the balancing period.
- c) An organization using the free allocation method shall deduct from the allocation account the respective allocated amount of the output, up to the limit in, but not exceeding, the allocated account within the balancing period.
- d) The balancing period shall not exceed the evaluation period. The balancing period should be as short as possible. The length of the balancing period shall be evaluated, taking into account the varying needs of different sectors and the desired effectiveness of the system.

C.4.3. The inputs and outputs shall be balanced. The Entity shall ensure a zero or positive balance within the balancing period.

C.4.4. The Entity shall provide evidence that volumes of material or products with specified IRMA achievement levels supplied to customers are balanced with the volumes bought by the Entity with the same IRMA achievement levels.

C.5. Requirements for Book and Claim Credit Model

C.5.1. The Entity applying the book and claim credit model shall calculate the credit of the inputs and outputs of a defined category of IRMA achievement level for each material or product as follows:

- a) The conversion factor shall be defined within each material or product at each site, and it shall be applied to define the amount of credit to enter the credit account, when using the output as the basis for calculation, or to withdraw the credit when using the input as the basis for calculation.
- b) The credit account balance shall be calculated for each period according to the formula given in Appendix 1. For each material or product, the organization shall set up and maintain a credit account for each type of input used as an output declaration. The organization shall ensure that the credit account is not overdrawn within the balancing period.
- c) An organization using the credit method shall deduct from the credit account the respective credit of the output, up to the limit in, but not exceeding, the credit account within the balancing period.
- d) The balancing period shall not exceed the evaluation period. The balancing period should be as short as possible. The length of the balancing period shall be evaluated, taking into account the varying needs of different sectors and the desired effectiveness of the system.

C.5.2. The inputs and outputs shall be balanced. The Entity shall ensure a zero or positive balance within the balancing period.

C.5.3. The Entity shall provide evidence, for all volumes of material or products with specified IRMA achievement levels supplied to customers, that materials or products with the same IRMA achievement levels have been produced.

C.5.4. The Entity shall provide evidence that credits are reliably controlled, and that double counting of credits is avoided at all times.

C.6. Conversion Factor

C.6.1. The conversion factor shall be defined for each ~~IRMA-audited material~~, at each site, depending on the processing or handling performed. The Entity shall ensure that the conversion factor is accurate and justifiable.

C.6.2. The conversion factors used within each facility are determined by the Entity, are indicated in documented information relating to the transformation of the material or product and are kept up-to-date.

C.6.3. When using the mass balance model with the free allocation method or the book and claim credit model, the conversion factor shall be applied to define the allocated amount/amount of credit to enter the allocation/credit account, when using the output as basis for calculation, or to withdraw the allocated amount/credit when using the input as basis for calculation.

C.7. Inventory Balancing

C.7.1. Within the chain of custody, the quantities of IRMA-audited material received and supplied to customers shall be reconciled within a one-year accounting period in order to verify that the outputs relate appropriately to the inputs. The Entity active in the chain of custody shall document the total quantity (volume or mass or units) of materials or products received and supplied to the customer. The documentation shall include:

- a) stock remaining from the previous accounting period;
- b) inputs received;
- c) inputs still in stock;
- d) outputs still in stock;
- e) outputs supplied to customer.

C.7.2. For an Entity applying the book and claim credit model: Within the chain of custody, the quantities of IRMA-audited material claimed (i.e. credits acquired) and supplied to customers shall be reconciled within a one-year accounting period in order to verify that the outputs relate appropriately to the credits acquired. The Entity active in the chain of custody shall document the total quantity (volume or mass or units) of credits acquired and of materials or products supplied to the customer. The documentation shall include:

- a) stock of credits remaining from the previous accounting period;
- b) credits acquired;
- c) credits still in stock;
- d) claimed outputs still in stock;
- e) claimed outputs supplied to customer.

C.8 Multiple Chain of Custody Systems

C.8.1. If the Entity is implementing more than one chain of custody system in the operation(s)¹³, the Entity shall keep a separate accounting for products (and/or credits) acquired through each chain of custody system used.

¹³ For example, if one of their clients require physically segregated batches of products while others use mass balance.

D. SALES AND SHIPPING

D.1. General Requirements

D.1.1. The Entity shall have all necessary infrastructures (e.g. software or other tools) and operating procedures in place to effectively operate the chain of custody system and ensure that **IRMA-audited material** can be tracked continuously without interruption through all processing and trading steps taking place within the scope of compliance between the acquisition of the material and forwarding to clients. For Entity applying the book and claim credit model, see requirement D.1.2. below.

D.1.2. The Entity applying the book and claim credit model shall have all the necessary infrastructures (e.g. software or other tools) and operating procedures in place to effectively operate the chain of custody system and ensure that **credits acquired** for IRMA-audited material can be tracked continuously without interruption through all processing and trading steps taking place within the scope of compliance between the acquisition of the credits and forwarding the products to clients.

D.1.3. The Entity shall document all sites where IRMA-audited material is acquired, handled, and forwarded and where internal processing steps occur, with additional requirements for site records as follows:

- a) Mining including on-site mineral processing:
 - IRMA achievement level and chain of custody model employed;
 - List of all recipients of IRMA-audited material (e.g., downstream mineral processing, collection points, storage facilities, warehouse, traders), including their address and contracts;
 - Additional input material used by the Entity but provided by third parties;
 - Production records (quarterly);
 - Sales orders, sales invoices, dispatch information—including dates; customers to which the batch or lot was dispatched; delivery records;
 - Stock records, including inventory balancing, for storage sites;
 - Transporter or shipper details.
- b) Downstream off-mine-site mineral processing and manufacturing:
 - List of all suppliers of IRMA-audited material, and copy of their valid IRMA achievement levels;
 - Purchase documents including, e.g., purchase orders, contracts, invoices and goods receipts inspections, delivery notes and received quantities;
 - Processing information including the conversion factors and specification of quantities of materials and products, stored and finished;
 - Production records;
 - Sales orders, sales invoices, dispatch information, including dates, customers to which the batch or lot was dispatched, delivery records;
 - Stock records including inventory balancing;
 - Transporter or shipper details;
 - Records of mass balance calculation (if relevant);
 - List of sites, status (in production/not in production);
 - Chain of custody model employed;
 - List of all recipients of IRMA-audited material (e.g. collection points, storage facilities, warehouse, traders), including their address and contracts;
 - Additional sites used by the Entity but owned by third parties.

- c) Storage Facilities, Warehouse and Traders
- List of all suppliers of IRMA-audited material, and copy of their valid IRMA achievement levels;
 - Purchase documents including, e.g., purchase orders, contracts, invoices and goods receipts inspections, delivery notes and received quantities;
 - Sales orders, sales invoices, dispatch information, including dates, customers to which the batch or lot was dispatched, delivery records;
 - Stock records including inventory balancing;
 - Transporter or shipper details;
 - List of all collection points, including name and address;
 - Record of mass balance calculation (if relevant);
 - If the Entity is not the legal owner of the storage site, a written contract between the Entity and the legal owner of the site will be required to forward products with an IRMA achievement claim included with the product information.

D.1.4. The operator shall keep these records for at least 5 years.

D.2 Registry Requirements

D.2.1. The Entity shall record the following information for IRMA-audited material in the IRMA Registry of Material at each step:

- a) For incoming IRMA-audited material (“acquisition”):
- Description of the incoming material, including technical specification, if available;
 - IRMA achievement level of the incoming material, or of the raw material that was used to produce the product, where applicable;
 - Country of origin;
 - Quantity of IRMA-audited material/s per IRMA achievement level
 - Conversion factor applied to define the allocated amount/amount of credit to withdraw when using the input as basis for calculation (when using the mass balance model with the free allocation method or the book and claim credit model);
 - Date of acquisition and (if different from the date of acquisition) date of entry in the Entity’s chain of custody tracking and management systems;
 - Location of the site where IRMA-audited material is acquired;
 - Name and address of supplier(s);
 - Name and address of the last production/processing site;
 - If the previous production/processing site is managed by an external third party, the name and address of this external third party;
 - Valid IRMA verification number and name of Certification Body;
 - Chain of custody model applied at the supplier’s last site.
- b) For IRMA-audited material being processed within the scope of IRMA achieving validation (“processing”):
- Identification and description of the process;
 - Name and address of the site(s) where the production steps occur;
 - Conversion factor(s) used in processing of each group of products per IRMA achievement level (where relevant).

- c) For outgoing IRMA-audited material (“forwarding”):
- Description of the product, including technical specification, if available;
 - IRMA achievement level of the material or of the raw material that was used to produce the product, where applicable;
 - Country of origin;
 - Quantity of IRMA-audited material/s per IRMA achievement level;
 - Conversion factor applied to define the allocated amount/amount of credit to enter the allocation/credit account when using the output as basis for calculation (when using the mass balance model with the free allocation method or the book and claim credit model);
 - Date of shipment;
 - Name and address of customer(s) and delivery site;
 - Name and address of production/processing site or storage site(s) from which the product is forwarded;
 - If the site from which the product is forwarded is managed by an external third party, the name and address of this external third party;
 - Unique number of the delivery note (e.g., Bill of lading, or invoice #);
 - Identification number of the batch;
 - Valid verification number and name of Certification Body;
 - Chain of custody model applied by the Entity’s forwarding site.

E. RECYCLED MATERIALS

Recycling takes place in several ways in the production of mined materials. Many mined materials utilize processes and manage materials using internal transfers and recycle loops. Other steps in the process chain recycle excess or waste material, from fabrication for example, by transferring it to upstream processors within the same chain of supply, or outside the chain of supply. Additionally, post-consumer recycled material may be introduced into the chain of supply. All these potential aspects of recycling present particular challenges for metallurgical accounting and the determination of input and outputs relative to *IRMA Standard Achievement Levels*. However, provided mass balance principles are utilized for recycled materials, such as this CoC Standard requires, their part in the supply chain can be accounted for accurately.

IRMA CoC Standard Conformance Requirements for Recycled Materials:

E.1. Internal transfers and recycle loops, which are not considered net inputs or outputs by an Entity

E.1.1. Within the chain of custody, the quantities internally transferred and recycled shall be reconciled within a six-month accounting period to verify that the outputs relate appropriately to the inputs. The Entity active in the chain of custody shall document the total quantity (volume or mass or units) of internally transferred and recycled materials or products. The documentation shall include:

- a) recyclable material in stock remaining from the previous accounting period;
- b) recyclable inputs received;
- c) recyclable inputs still in stock;
- d) recyclable outputs still in stock;
- e) recyclable outputs supplied to customer.

E.2. Transfers and recycle loops to upstream processors within the same supply chain

E.2.1. Within the chain of custody, the quantities externally transferred and recycled to Entities within the same chain of supply shall be reconciled within a six-month accounting period to verify that the outputs relate appropriately to the inputs. The Entity active in the chain of custody shall document the total quantity (volume or mass or units) of externally transferred and recycled materials or products. The documentation shall include:

- a) recyclable material in stock remaining from the previous accounting period;
- b) recyclable inputs received;
- c) recyclable inputs still in stock;
- d) recyclable outputs still in stock;
- e) recyclable outputs supplied to customer.

E.3. Transfers and recycle loops to upstream processors outside the same supply chain

E.3.1. Transfers and recycle loops to upstream processors outside the same supply chain should be accounted for as a loss of corresponding material meeting an *IRMA Standard Achievement Levels*.

E.4. Post-consumer recycled material

E.4.1. Within the chain of custody, the quantities of post-consumer recycled material introduced within the chain of supply shall be reconciled within a six-month accounting period to verify that the outputs relate appropriately to the inputs. The Entity active in the chain of custody shall document the total quantity (volume or mass or units) of post-consumer recycled materials or products introduced to the chain of supply. The documentation shall include:

- a) post-consumer recyclable material in stock remaining from the previous accounting period;
- b) post-consumer recyclable inputs received;
- c) post-consumer recyclable inputs still in stock;
- d) post-consumer recyclable outputs still in stock;

APPENDIX 1. FREE ALLOCATION AND CREDIT METHOD FORMULA

The formula is calculated for each period according to one of the following.

Use [Formula 1](#) when the conversion factor is applied before the material enters the account:

$$\text{Formula 1: } C_b = C_{bp} + (M_{in} \times cf) - M_o$$

Use [Formula 2](#) when the conversion factor is applied when the material leaves the account:

$$\text{Formula 2: } C_b = C_{bp} + M_{in} - (M_o / cf)$$

where

- C_{bp} = the allocation/credit balance by the end of previous period;
- C_b = the allocation/credit balance;
- M_{in} = the purchased material or product, into the allocation/credit account;
- M_o = the produced material or product, deducted from the allocation/credit account;
- cf = the conversion factor.

The given symbols are calculated based on units, volumes or weights.

NOTE: The calculations shown above are designed to illustrate the principle of the free allocation and the credit method. Other more complex scenarios can also be used in practice. In some cases, the allocation/credit amount is administered before the conversion factor is applied. In addition, the amount of input and output are often not the same as most organizations are likely to have a balance in their allocation/credit account before more input is added to the chain of custody system.

All data and written content are licensed under the Creative Commons Attribution-NonCommercial 4.0 International License (CC BY-NC 4.0).



Users are free to share and adapt the material but must give appropriate credit, provide a link to the license and indicate if changes were made. The licensed material may not be used for commercial purposes, or in a discriminating, degrading or distorting way. When cited, attribute to: “Initiative for Responsible Mining Assurance (IRMA), IRMA Chain of Custody Standard for Responsible Mined Materials – Version 1.0”.

2024 – Initiative for Responsible Mining Assurance

www.responsiblemining.net

IRMA Initiative for Responsible Mining Assurance